IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Adam J. Weissman et al.	Art Unit:	2162
Serial No.:	10/741,303	Examiner:	Dennis Y. Myint
Filed:	December 18, 2003	Conf. No.:	4367
Title:	METHODS AND SYSTEMS FOR DETECTING AND EXTRACTING INFORMATION		

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

REPLY BRIEF

Pursuant to 37 C.F.R. § 41.41, Applicant responds to the Examiner's Answer mailed October 2, 2008 and the New Grounds for Rejection Raised therein as follows.

RESPONSE TO NEW GROUNDS FOR REJECTION OF CLAIMS 15-28, 36, AND 42-46 UNDER 35 U.S.C. § 101

At page 5, para. 2, the Examiner's Answer rejects claims 15-28, 36, and 42-46 under 35 U.S.C. § 101 as allegedly being directed to non-statutory subject matter. In particular, the rejection contends that the these claims are directed to non-statutory subject matter because "[t]he specification fails to limit 'computer-readable data storage media' and is directed to (1) all optical media and (2) any other medium from which a computer processor can read instructions."

Applicant respectfully disagrees. As for computer-readable data storage media including optical media, applicant agrees but respectfully submits that such optical media are not excluded from patentability. In support thereof, appended hereto are:

Appendix 1) A definition of "optical media" from the website Techterms.com, which describes that "[o]ptical media refers to discs that are read by a laser. This includes CD-ROMs, DVD-ROMs, and all the variations of the two formats -- CD-R, CD-RW, DVD-R, DVD+R, Blu-ray, and many others." *Available at* http://www.techterms.com/definition/opticalmedia.

Appendix 2) A definition of "optical media" from the website Searchstorage.com, which describes that "[o]ptical media - such as the compact disk (CD) - are storage media that hold content in digital form and that are written and read by a laser; these media include all the various CD and DVD variations, as well as optical jukeboxes and autochangers." *Available at* http://searchstorage.techtarget.com/sDefinition/0,,sid5_gci509556,00.html.

Appendix 3) A definition of "optical media" from the document entitled "MEMORY OF THE WORLD - Safeguarding the Documentary Heritage" prepared by the International Advisory Committee for the UNESCO Memory of the World Programme Sub-Committee on Technology, which describes that "[o] ptical media are used for storing digital sounds, images and data. There are three main families: * The commercially issued, mass produced, CD family including the digital audio CD- both 12cm and the "single" 8cm disc - CD-ROM, CD-I and CD-V and the analogue Video Disc. * Optical disks and tapes that can be recorded on once. * Re-recordable disks." *Available at* http://www.unesco.org/webworld/mdm/administ/en/guide/guide009.htm#_Toc39491996.

As can be seen, in context, it is commonly accepted that optical media are limited to tangible data storage media. Hence, the inclusion of optical media in computer-readable data storage media is correct. However, this inclusion does not somehow exclude computer-readable data storage media from patentability. Instead, optical media are as tangible as other data storage media.

As for the contention that the specification fails to limit the recited "computer-readable data storage media" to any other medium from which a computer processor can read instructions, applicant respectfully disagrees. As is self-evident, the recited "computer-readable data storage media" are limited to "data storage media." The mere fact that the specification mentions that computer processors can read instructions from other (non-storage) media does not mean that these other media are somehow to be conflated with data storage media.

Indeed, the distinction between the recited "computer-readable data storage media" and other (non-storage) media was expressly noted by the Office. In particular, the Advisory Action mailed March 24, 2008 contended that:

> "'computer readable media' and 'computer-readable data storage media' are not the same." *See Advisory Action mailed March 24, 2008*, page 2, second paragraph.

Since this distinction was recognized by the Office itself in previous correspondence, the contentions to the contrary in the Examiner's Answer are unavailing.

Indeed, applicant submits that those of ordinary skill understand data storage media do, in fact, store data and hence exclude the other (non-storage) media mentioned in the specification. Accordingly, the new grounds for rejection of claims 15-28, 36, and 42-46 under 35 U.S.C. § 101 are improper and applicant respectfully requests that they be withdrawn.

At page 37, line 17, the Examiner's Answer contends that:

> "In the above example [of Copperman para. [0132]], 'can't connect' and 'network' are origin concepts. TCP/IP is the evaluated concept. Distance/weights between said concept nodes are illustrated Figure 2 of Copperman; Particularly note Paragraph 0037-0038, Figure 6, Paragraph 0061 of Copperman which teaches how said weights/relationships/ distances are derived."

While these statements are, in and of themselves true, nothing in these statements or in the cited portions of Copperman would lead those of ordinary skill to receive, from a user, requests for information that include a definition of a concept list comprising an origin concept, a relationship between the origin concept and an evaluated concept, and a distance representing a strength of the relationship between the origin concept and the evaluated concept, as recited. In particular, the translation matrix between primary group vectors illustrated in FIG. 6 has nothing to do with receiving requests for information from a user. *See, e.g., Copperman*, para. [0061].

For these reasons, and the reasons stated in the Appeal Brief, Applicant submits that the final rejection should be reversed.

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Respectfully submitted,

Date: December 1, 2008

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Optical Media

Media, in the computer world, refers to various types of data storage. For example, h USB drives are all different types of media. Optical media refers to discs that are reac CD-ROMs, DVD-ROMs, and all the variations of the two formats -- CD-R, CD-RW, and many others.

Optical media typically does not have as fast of a seek time as hard drives (the time it on different parts of the disk), but it has many other advantages. Because optical disc charges like hard drives are, the discs are less likely to lose their data and have a long times longer than magnetic media. The discs are also more durable than hard drives a produce, making them great for backups and for transferring small amounts of data b

Tech Factor 6

Category Hardware Terms

SearchStorage.com Definitions (Powered by Whatis.com)

optical media

DEFINITION - Optical media - such as the compact disk (CD) - are storage media that hold content in digital form and that are written and read by a laser; these media include all the various CD and DVD variations, as well as optical jukeboxes and autochangers. Optical media have a number of advantages over magnetic media such as the floppy disk. Optical disk capacity ranges up to 6 gigabytes; that's 6 billion bytes compared to the 1.44 megabytes (MB) - 1,440,000 bytes - of the floppy. One optical disk holds about the equivalent of 500 floppies worth of data. Durability is another feature of optical media; they last up to seven times as long as traditional storage media.

The Optical Storage Technology Association (OSTA) is an international trade organization dedicated to the promotion of standardized writable optical technologies and related products. Incorporated in 1992, OSTA is made up of members and associates from the leading optical media manufacturers and resellers of North America, Europe, and Asia. OSTA members include Adaptec, Hewlett-Packard, Philips, and Sony.

LAST UPDATED: 28 Dec 2000

Read more about optical media:
- OSTA provides "More About Optical."

Do you have something to add to this definition? Let us know.
Send your comments to techterms@whatis.com

Back to *6. Magnetic Materials* | Up to *Table of Contents* | Ahead to *8. Electronic Publications, Electronic Documents and Virtual Information*

7. Optical Media

Optical media are used for storing digital sounds, images and data. There are three main families:

- The commercially issued, mass produced, CD family including the digital audio CD- both 12cm and the "single" 8cm disc - CD-ROM, CD-I and CD-V and the analogue Video Disc.
- Optical disks and tapes that can be recorded on once.
- Re-recordable disks.

Jukeboxes are available for most types of disc allowing automated access to a number of discs.

Mass Produced Discs

The mass-produced discs of the CD family have the digital information in the form of microscopic pits pressed into a polycarbonate base which is coated with a light reflective layer. This reflective layer is usually of aluminium, but gold and silver are also used. A transparent lacquer is then placed over the reflective surface to protect it. This surface also carries any label information. As the data on members of the are impressed, they cannot be altered or rewritten.

Because of the high costs to setup the production of a pressed disc, the discs are only used when large numbers of copies are required (over about 100), for example, encyclopaedia or sound recordings. The higher the number of discs issued, the lower is the unit price. The storage capacity of a 12cm CD is about 650 MB or one hour of audio. The average access time is about 300 ms with a double speed player, 250 ms with quadruple speed and 130 ms with sextuple speed.

The first disc in the family to be developed was the 30cm analogue LV (Laser Vision) Disc for video. This usually consisted of two discs stuck back-to-back to form a double sided disc with one hour of video per side. A sub-format was developed which could store up to 54000 still video images per side. The LV disc was the most successful of several attempts to generate market acceptance but is expected to be superseded by the DVD (Digital Versatile Disc or Digital Video Disc) that is being launched in 1997.

The DVD is the same diameter as the CD (12cm) but, by using a laser with a shorter wave length, the storage capacity of one layer is increased by a factor of seven to 4×7 GB. Additionally, a dual layer structure will be possible, read by two different laser wave lengths, thus doubling the capacity to 9 GB. In principle, by glueing two such double layer disks together like the LV video disks, a total capacity of 18 GB can be achieved. The disk is intended for the storage of data-reduced video-films or, like CD-ROMs, texts and multimedia data with, however, considerably higher storage capacities.

Write-Once Recordable Media

There are several types of write-once recordable disks. The format that is becoming the most widely used is the recordable CD (CD-R or CD-WO) which has been available since 1993. Having the same format and storage capacity as the audio CD and the CDROM, the CDR can be played on the appropriate standard CD drives. The polycarbonate body of the disk has a dye layer placed on it which is

then coated with a metallic reflective layer. The dye layer carries the data in place of the pits of pressed discs. When recording, highintensity laser pulses change the dye from opaque to transparent. The low-intensity read laser reads the changes in reflected light as a digital bit stream. Once written, the data cannot be altered. CD writing drives are already available on different speed levels. The CDR is a well established and standardized format. Different standardized software protocols are available for recording Audio CDS and CD-ROMs. The Photo-CD is a CD-R with a proprietary software protocol to record photographs as electronic still images.

A recordable version of the DVD in not yet available, but may be expected in the near future.

CD-Rs are but the latest and most prominent examples of so-called WORM (Write Once, Read Many) disks which have been in use as computer storage media for quite some time. The biggest problem with WORMs is the great variety of systems and formats. A number of producers offer WORMs with a continuous helical recording format similar to a sound LP disk; others offer disks with ring-shaped tracks as on computer floppy and hard disks. Some can use both formats. The proprietary software of WORMs poses a problem, too. Not even the physical dimensions are standardized.

One writing method used by a number of manufacturers including LMS, Toshiba and Sony burns pits in the metallic surface of the disc with a laser beam. Another system supported by ATG and Optimen creates bubbles by the heat of the laser beam. In both cases the reflectance of the metallic layer is changed and the data can be read by a low power laser beam.

Optical Tape

Optical tape is made by ICI and packaged in a cassette for use as a WORM format data storage tape. The tape drives are made by EMASS in the USA and supplied in Europe by GRAU Storage Systems. Kodak are about to launch a competing system.

The tape contains a dye layer which changes its state when a high power laser beam is applied and can be read by a lower power laser - the same basic method as for CD-Rs. Because the tape is a sequential carrier, the access time can be quite long. In compensation, the storage capacity of one tape is considerably greater than a disc (up to 100GB).

Rewritable Optical Media

In contrast to the preceding optical media, data on rewritable optical disks ("Erasable"), MagnetoOptical (M/O) and Phasechange, can be altered or deleted many times. There are rewritable optical disks in the 5×25 inch format and, more recently, in the 3×5 inch format. The most common still are the magneto-optical discs, where a laser beam in the write mode heats the inner layer of the optical disk and thus changes the polarity of a magnetic coating. The resulting microscopic magnetic marks of different polarity can be read as a bit stream by a lowenergy laser beam in the read mode. A more recent recording technology is the Phasechange where the carrier layer is coated with a thin semimetal film, which can be both in an amorphous and in a crystalline state. A laser beam in the write mode can change single spots to either an amorphous or a crystalline state so that, again, a digital bit stream is created. The Phasechange may replace M/O in the future.

Rewritable optical disks have a short accesstime (600 milliseconds). The storage capacity has steadily increased up to the current 2×6 GB.

The Stability of Optical Carriers

The main factors that affect the stability of carriers and the retrieval of information can be summarised as:

- Humidity and temperature.
- Mechanical deformation.
- Dust and dirt of all kinds.

For some carriers there are additional factors:

- Light
- Stray magnetic fields.

Humidity is, as with other data carriers, a most dangerous factor. In the case of optical media it has a hydrolytic action on components such as the protection layer of CDs and a corrosive influence on all metal components including metallic reflective layers. As a secondary effect, high humidity levels (above 65% RH) encourages the growth of moulds and fungi which can obstruct the reading of optical information.

Temperature, as with all other data carriers, determines the speed of (deteriorating) chemical reactions. More importantly, it is responsible for dimensional changes which may be of concern, especially in the case of multi-layer media.

Mechanical integrity is of utmost, and underrated, importance. Even microscopic scratches can hinder the reading laser beam, as do fingerprints and other foreign matter. Mechanical bending of discs cause microscopic cracks which again divert the laser. While the WORM and MO-disks developed as computer storage media are housed in cartridges which only open when inserted into the respective players, the representatives of the CD-family must be handled with utmost care, keeping mechanical integrity in mind.

Dust and dirt prevents the proper reading of the recorded information. Cigarette smoke will accumulate on the disk surfaces and may hide information. The CD-family is again more exposed to this danger than those disks that are protected by cartridges.

Light may affect the dye layers used in recordable and erasable disks.

Stray magnetic fields must be kept away from magneto-optical disks.

Recommended Climatic Storage Parameters

	Temp	±/24 h	±/Year	RH	±/24 h	±/Year
Optical Media	about 20°C	±1°C	±3°C	40%	±5%	±5%

Fluctuations of chosen parameters should be kept to a minimum. Operation areas (studios) should, therefore, have the same climatic conditions as storage areas. As with magnetic carriers, tighter parameters would be favourable for long term preservation. Such suggestions have, however, to be offset against the availability of hard- and software, which seems to be of greater concern than the stability of the carriers themselves.

Standards

AES28xxxx	Draft AES Standard for Audio Preservation and Restoration Method for Estimating Life Expectancy of Compact Discs (CDROM), Based on Effects of Temperature and Relative Humidity.
AESxyxxxx	Draft AES Standard for Audio Preservation and Restoration Method for Estimating Life Expectancy of Magnetooptical Disks, Based on Effects of Temperature and Relative Humidity.
ISO/DIS 9171-1.2. ISO/IEC 91711:1989	Information Processing Information Interchange on 130 mm Optical Disk Cartridge Write Once (**5×25 inchWORM**, 297327 MB on each Side), Teil 1: Unrecorded Optical Disk Cartridge (Technical concept, conditions for handling and storing, measures, mechanical and physical properties, optical properties or information, physical interchangeability between systems)
IASA TC03	The Safeguarding of the Audio Heritage: Ethics, Principles and Preservation Strategy. 1997
ISO DP 10090 Draft Proposal	Standards for Information Interchange on 86 mm Optical Disk Cartridges (3×5 inch Rewritable M/O, 120 MB on each Side) are still under preparation

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 Back to *6. Magnetic Materials*

 Up to *Table of Contents*

 Ahead to *8. Electronic Publications, Electronic Documents and Virtual Information*